

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
9 December 2004 (09.12.2004)

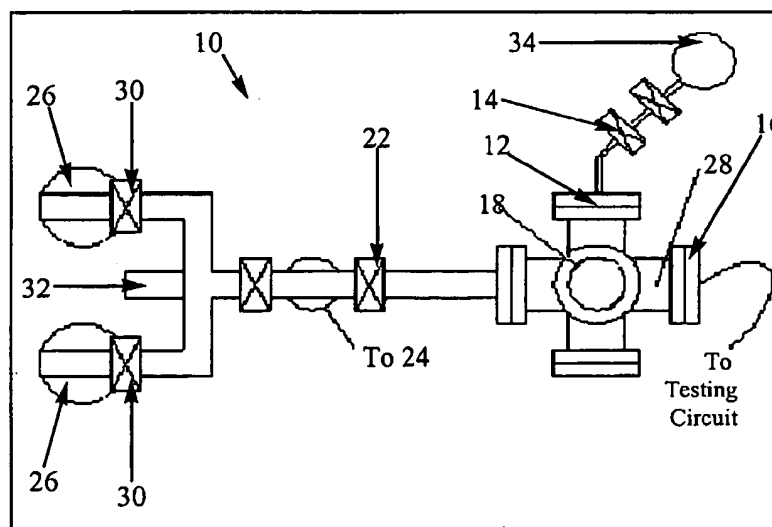
PCT

(10) International Publication Number  
WO 2004/106908 A1

- (51) International Patent Classification<sup>7</sup>: G01N 27/00, 27/44, C23F 1/02
- (21) International Application Number: PCT/US2003/015749
- (22) International Filing Date: 20 May 2003 (20.05.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (71) Applicant (for all designated States except US): THE UNIVERSITY OF AKRON [US/US]; 302 Buchtel Commons, Akron, OH 44325 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): RAMSIER, Rex [US/US]; 3850 Mill Road, Berlin Center, OH 44401 (US). LUNDY, Desmond [CA/CA]; Box 30112, Saanich Centre, Victoria, British Columbia V8X 5E1 (CA).
- (74) Agents: WEBER, Ray et al.; Renner, Kenner, Greive, Bobak, Taylor & Weber, 4th Floor, First National Tower, Akron, OH 44308 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— with international search report

[Continued on next page]

(54) Title: SOLID STATE GAS SENSORS BASED ON TUNNEL JUNCTION GEOMETRY



(57) Abstract: A gas detector utilizing tunnel junction geometry is disclosed. The gas detector comprises a first electrically conductive material layer, an electrically nonconductive material layer disposed on the first electrically conductive material layer, a second electrically conductive material layer disposed on the electrically nonconductive material layer, a gas source (34) in fluid communication with the second electrically conductive material layer; and a power source in electrical communication with the first and second electrically conductive material layers. A method of detecting a gas utilizing the detector of the present invention is also disclosed. A method of making a gas detector is likewise disclosed.

WO 2004/106908 A1



---

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*